Preventing ATV Injuries and Deaths in the Pediatric Population

Any EMS professional knows warmer weather is accompanied by more pediatric traumatic injuries. Every year, ATVs are responsible for tens of thousands of injuries to kids. Approximately 70 children are killed in ATV or ORV (off-road vehicles) incidents annually.

ATVs are used across the country for recreation, farm work and transportation. Many families who own these vehicles are unlikely to keep their kids from using them. Pediatric health care professionals and EMS agencies can and should promote safer use within their communities.

Statistics:
Children who are younger than 16 years old are:
- 4x more likely to be injured on ATVs than adults.
- 2x as likely to be hospitalized as children injured in motor vehicle crashes.
- 12x more likely to die from ATV-related injuries than from bicycle-related injuries.
- Nearly all pediatric ATV-related deaths and injuries occur on adult-sized ATVs.

Despite representing only 14% of ATV riders, 30% of ATV injuries and 20% of deaths are pediatric. In the United States, total health care costs for these deaths and injuries totals approximately $1 billion/year (Pediatrics. 2014; 134(6):1094-1102).

Injuries:

- 51% Extremity Injuries
- 27% Head/Neck
- 20% Abdominal
- 2% Other

Children’s Mercy Emergency Department 2018-2019:
- 72 children treated for ATV-related injuries (12% admitted to PICU)
- 2 deaths
- Age range: 1 year to 17 years
- Average age: 10.8 years
- These numbers spike from April-August.

The American Academy of Pediatrics (AAP) recommends no use of ATVs by children under the age of 16 years. Additional recommendations include that the vehicles are not used for additional passengers, all drivers wear protective equipment and receive official training, and no driving on paved roads. The AAP Committee on Injury and Poison Prevention also strongly urges medical professionals to educate families regarding the dangers of ATV use. (Pediatrics. 2000; 105; 1352-1354).

Community Recommendations:
1. Training (only 15-26% of riders)
   a. Fewer crashes with training.
   b. Higher likelihood of protective equipment (reduces death by 40%).
2. Enforcement
   a. ATV legislation varies from state to state.
     i. Missouri: no riders <16 years unless with a parent, helmets on all riders under the age of 18, must be titled and registered with an adult, and use on highways and passengers only allowed for agricultural or industrial purposes.
     ii. Kansas: No age requirements, highway use limited to licensed drivers, less than 65 mph, right side of road.
3. Education
   a. School safety programs
   b. Parent focus groups
   c. Fairs, parades, community events (especially in farming communities)

Health care professionals can help reduce the injuries and deaths from ATV incidents in their communities by connecting with families through education and awareness. Below are some helpful resources for information, safety tips and effective communication tools.

Resources:
- ATV Safety Institute: ATVsafety.gov
- Injury Free Coalition for Kids: injuryfree.org
- Consumer Product Safety Commission: cpsc.org
- National Safety Council: nsc.org

Thanks to Kristyn Jeffries, MD, Pediatric Fellow, Children’s Mercy, for sharing her expertise for this article.
Any EMS provider who has ever had to take care of a child in a life-threatening emergency, knows how stressful the situation can be. If it’s not something you do every day, in the moment, you may not remember the protocol for pediatric advanced life support, dosing for medications, or even who to call for help.

That’s why Children’s Mercy has developed a new Resuscitation module for its well-established PedsGuide App.

“The mission for the Resuscitation module is to provide an easy-to-use, palm-in-your-hand, rapid access tool that gives you clinical decision support for specific pediatric conditions in an evidence-based fashion,” said Brandan Kennedy, MD, Medical Director of the PedsGuide App.

“The module reduces cognitive load, guiding you to the evidence-based answers you need,” Dr. Kennedy added. “These tools can help EMS make better decisions on the frontlines, which then can improve a child’s outcome in their downstream care.”

The Making of the Module

Though the Resuscitation module is now available at the swipe of a finger, it took years of hard work and collaboration to bring the idea to life. In fact, the module started years ago with a document called the Pediatric Advanced Life Support (PALS) quad-fold pocket reference card, a staple the hospital’s PALS/BLS Training Center and Physician Services had printed and distributed for years to community paramedics, EMTs, pediatricians and nurse practitioners.

Robert Schremmer, MD, Children’s Mercy Emergency Department, said keeping the cards updated, distributing new cards, and making sure clinicians were using the latest version was an ongoing challenge. Plus, the quad-fold card was limited by the size of someone’s pocket.

Early in the app development process, the center received a grant from the Kansas Health Foundation that allowed the Simulation Team to provide an educational experience for EMS providers in rural Kansas. During that experience, the team asked participants to test the app in a simulated situation.

“The team recorded how EMS interacted with the app—where they touched it, how easy it was to see and read, how easy it was to follow,” Dr. Schremmer explained.

Dr. Kennedy also recognized how important it would be for the app to calculate drug dosing. “We wanted to be able to enter a child’s weight and age in the app, and have it calculate the correct dose for the user, reducing cognitive load,” Dr. Kennedy said.

Other features of the module include information and support for calculating body surface area for burn patients and a formula for burn fluid resuscitation; equipment information such as appropriate IV sizes; neonatal content; normal vital signs for weight and age; and basic life support information.

After almost five years in the making, the Resuscitation module is now available, offering up-to-date, evidence-based clinical guidance for frontline providers in the assessment and stabilization of neonatal and pediatric patients in a fast-paced clinical environment, anytime, anywhere.

The module can be customized for each patient based on the information input, includes auto-fill medication dosage recommendations, age-appropriate assessment tools, and more.

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Critical Care Transport Recognizes EMS for Kids Day

Children’s Mercy Kansas City celebrated our EMS partners during EMS Appreciation Week. In addition to cupcakes, goody bags and pediatric resources that were available in the EMS rooms at Adele Hall and Children’s Mercy Hospital Kansas, Children’s Mercy employees from the Emergency Department, Urgent Care, Trauma, Transport and Transfer Center had the opportunity to visit some of the metro area fire and dispatch stations with special cupcake deliveries.

Though children represent only a small number of the patients these frontline heroes care for, they require skill, training and compassion to stabilize and safely transport. Children’s Mercy staff members were excited for the opportunity to share their gratitude with our partners in caring for kids!

For more information on free on-site or virtual pediatric EMS education, contact Laura Kemerling, Critical Care Transport Outreach Coordinator, at lakemerling@cmh.edu / (816) 302-8282; or visit childrensmercy.org/ems.

Resuscitation Module Features
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• Intuitive design facilitated by Human Factors for easy access to evidence-based information.

• Once the App is downloaded, no internet access is necessary, a factor for EMS in rural areas.

• Quick customization provides assistance with weight and age-based drug dosing, equipment sizes, initial burn management and more.

• Detailed resources at your fingertips: GCS for head injuries, drip calculations, administration concentrations and more.

• One-touch connection to the CMH Transfer Center: 1 (800) GO MERCY / 1 (800) 466-3729.

The PedsGuide app can be downloaded free from the Apple app store and Google Play. Just go to the App store, and search for Children’s Mercy PedsGuide.

To watch a video about the PedsGuide app, please scan this QR code.
Prehospital Management of Behavioral Health Patients Increasing

One of the consequences of the COVID pandemic during the last year is not just the disease, but the impact on mental health issues affecting children and adolescents caused by quarantining and isolation. In fact, since COVID, staff at Children’s Mercy have reported increased concerns regarding mental health issues and violent behavior directed at medical providers. EMS providers may be experiencing this as well.

In the prehospital setting, psychiatric, psychological, and/or cognitive function may pose timely consideration during emergencies. Aspects of Attention Deficit Hyperactivity Disorder (ADHD), autism spectrum disorder (ASD), trauma, self-harm or suicidal ideation, depression, anxiety, and developmental delays are just a few health conditions that may influence an emergency medical service provider’s evaluation and treatment.

Three important considerations to include when approaching a child during a behavioral emergency are provider safety, the patient’s mental status and the need to transport. Assessing the potential for violent behavior on scene or during transfer is a top priority. With this, establishing a rapport with the child and looking to the child’s primary caregiver for guidance are initial recommendations.

When assessing the patient’s mental status, comparing cognitive abilities to frequently used neurological assessment scales potentially poses challenges. Therefore, in order to determine subsequent steps in care of the patient, ask yourself, “Is this child a risk to himself/herself or others?” If violent behavior or risk of harm is identified, notifying law enforcement may be necessary. Again, listening to the child’s primary caregiver for insight is important when gathering information.

Determining the need to transport and identifying the next most appropriate level of care will vary between emergency providers, agency protocols, and regional treatment facility availabilities. Always plan ahead for the possibility of restraining the patient in the ambulance and ensure the patient’s caregiver arranges a means to meet the ambulance at the hospital or receiving facility.

If the use of physical or chemical restraints is considered or occurs during interaction with EMS, explain this to the patient’s caregiver, including what is happening and why it is necessary. Do not attempt to place restraints on the child alone and remember that simply securing the child in a seat belt may provide sufficient restraint for a safe transfer. Of note, the use of chemical restraints with medication is not routinely used in children, although it may be considered if an agency’s protocol specifies with online physician direction.

As with an adult patient, it is most appropriate to accompany a child of any age with behavioral health needs in/out of a health care facility while secured to a stretcher. This safely keeps the child from escaping, potentially harming himself or herself or another individual.

For more information regarding concerns surrounding behavioral health emergencies, contact the Children’s Mercy Adele Hall Campus Emergency Services department at (816) 234-3430.
EMS Site Updated

Current information and education specifically for EMS providers can now be found in one location: www.childrensmercy.org/EMS.

The website has been re-vamped to include a number of features:

- Brief podcast segments for prehospital providers.
- Links to educational offerings focused on pediatric trauma and medical emergencies.
- Highlighted stories on regional EMS Heroes.
- A link to request Children's Mercy's participation at a conference or event.
- Contact information for the EMS liaisons.
- Information on the PedsGuide App, a decision support tool for pediatric care.

To nominate an EMS provider as a “Hero for Kids” or to recommend an educational topic to be used for a podcast segment, please email Laura Kemerling at lakermerling@cmh.edu.

EMS Heroes: Meet James Moran

Children’s Mercy recognizes and applauds the first responders who work with our patients every day. Read on to find out more about one of our EMS heroes.

What’s your name and current position?

My names is James Moran, and I’m a Paramedic/Firefighter for Kansas City Fire Department (KCFD), based at station #2, 75th and Prospect Street.

What’s your background in EMS?

I’ve worked at the KCFD for four years and the Children’s Mercy Transfer Center one year.

Prior to Children’s Mercy, I worked in law enforcement as a sheriff for Jackson County. My law enforcement career started directly after graduating from Ottawa University where I obtained my bachelor’s degree in criminal justice.

What is your “superhero” power when it comes to taking care of children?

I am good at obtaining intravenous (IV) access on pediatric patients.

How do you use that “power,” talent, or skill to help your pediatric patients?

Having a skill for placing IVs on pediatric patients allows me to be ready for critical interventions during time-sensitive situations. It is always best to be prepared for a patient who is at risk of clinically decompensating, and for pediatric patients, this can happen quickly.

How have your past experiences working in pediatrics affected how you care for kids in the prehospital setting or in your personal life?

My past experiences working in pediatrics have encouraged me to not be intimidated by intervening for sick little ones. As a communication specialist at Children’s Mercy, I remember countless times I responded to panicked care providers, requesting transport, consultation, or direct admission for very ill children. Also, working with an incredibly busy unit at KCFD for the last four years, my prehospital experiences have built my confidence in responding during pediatric emergencies.

Can you share a little about your personal life?

I love football, having played the sport during my training at Ottawa University. I also have a strong bond with my five dogs, my grandfather, and my Jeep.

What activities do you enjoy when you’re not working? How do you “de-stress” from work?

Working 24-hour shifts, I rarely take time off work. When I do, I enjoy taking the Jeep and the dogs on short outings. I recently purchased a motorcycle and am looking forward to making memories with it and my grandfather.

What’s the most rewarding thing about the work you do?

One of the most rewarding things about my job is earning the trust and respect of co-workers at my station. Being one of the youngest medics in my unit, I have found great pleasure in working alongside my seasoned peers.

The past few months have been difficult for all in health care. Do you have any words of advice for your fellow EMS providers that have inspired you?

I recognize that in this line of work, battling burnout and responding to increasingly violent scenes has had a massive impact on workload and employee morale. I advise my fellow EMS providers to recognize these changes and just keep trying to take the best care you can of yourself and your patients.

SAVE THE DATE

2nd Annual EMS Symposium
KID CARE: UPDATES IN EMERGENCY MEDICINE FOR PREHOSPITAL PROVIDERS
SATURDAY, NOV. 6, 2021
7:45 a.m. – 12:30 p.m.

Is there one particular patient or case that stands out in your mind that you transported to Children’s Mercy and what stands out about it?

I remember the first critically ill pediatric patient I cared for. It was the first call on my first shift with KCFD. Being called out at 2 a.m. for an unresponsive female who was at a sleepover with her Girl Scout troop was a memorable way to start my career as a paramedic/firefighter.

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Pediatric Pulse

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SAVE THE DATE

5th Annual Children’s Mercy Trauma Conference
THURSDAY, SEPT. 9, 2021
8 a.m. – 5 p.m.

Presented by Children’s Mercy Kansas City Level 1 Pediatric Trauma Center

For registration go to: cmkc.link/TraumaConferenceReg